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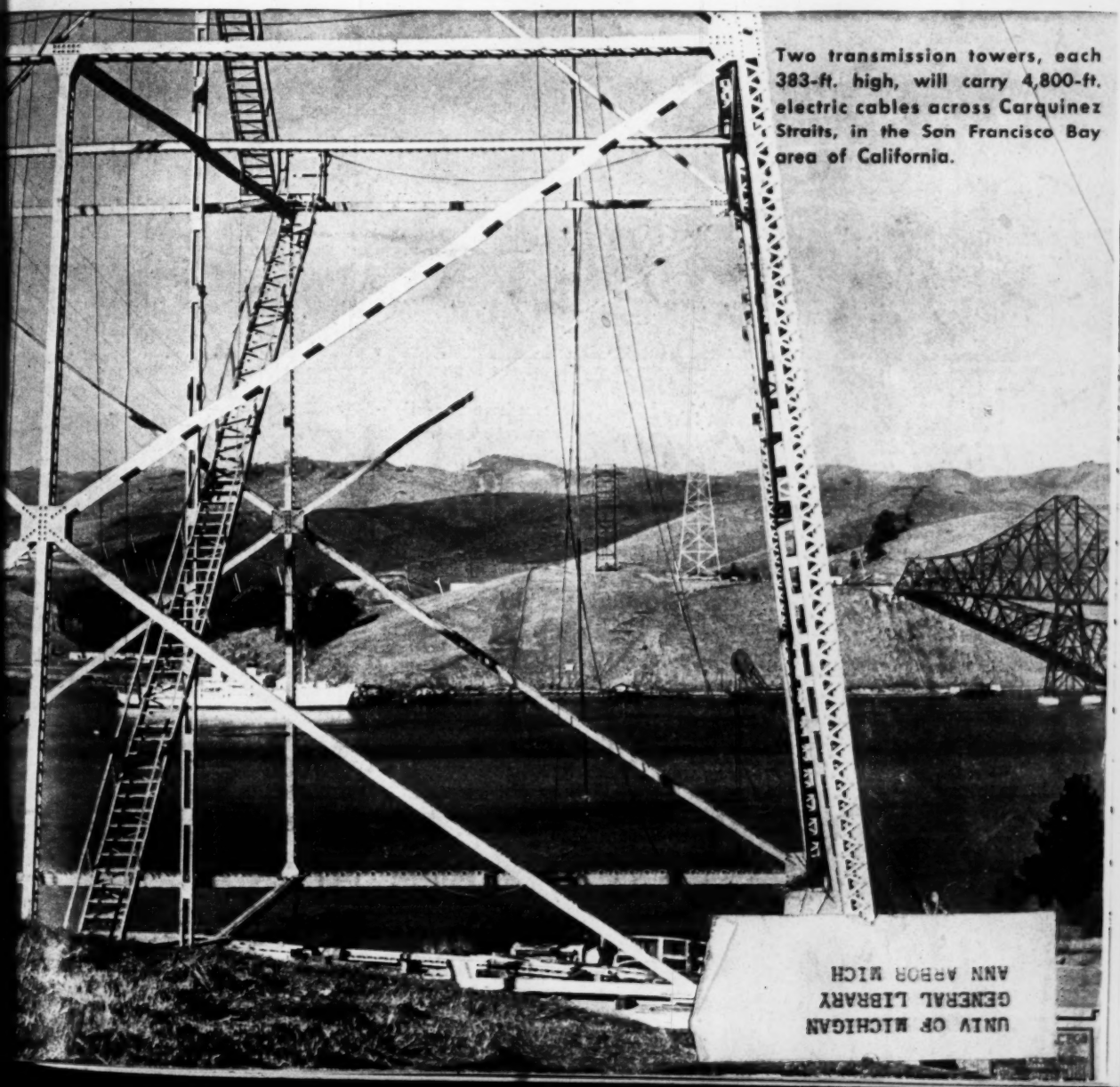

Two transmission towers, each 383-ft. high, will carry 4,800-ft. electric cables across Carquinez Straits, in the San Francisco Bay area of California.

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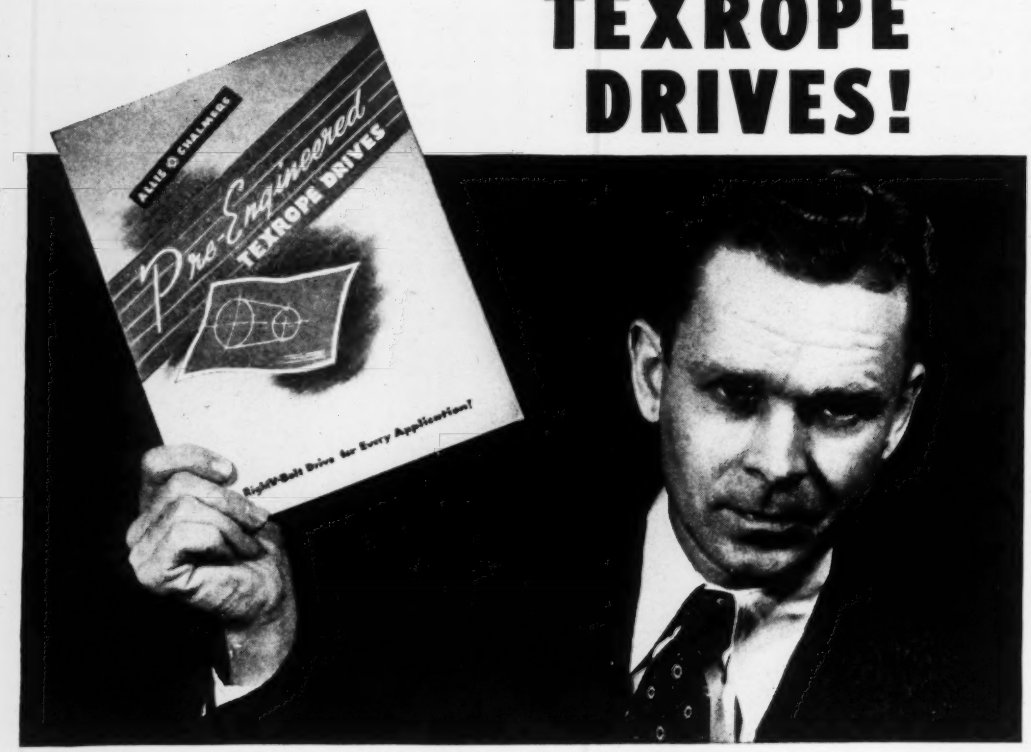

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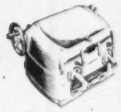

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News of the Week

ENGINEERING NEWS-RECORD • JANUARY 15, 1948 • VOLUME 140 • NUMBER 3

President seeks $2.1 billion for public construction work

Corps of Engineers, Federal Works Agency, Bureau of Reclamation named for huge sums in record high request for construction funds

An appropriation of $2,177,000,000 for public-works construction for the fiscal year 1949 was recommended by the President in his $39,700,000,000 budget message to Congress Jan. 12.

The figure far exceeds any previous budget request for construction. In the 1947 fiscal year, actual construction expenditures were $1,400,000,000, and anticipated expenditures in 1948 will be about $2,000,000,000. The 1949 fiscal year begins July 1, 1948.

Major appropriation requests were for the Corps of Engineers, for whose work a total of $663,451,000 was asked; the Federal Works Agency, $482,588,800; the Bureau of Reclamation, $240,661,000; the Atomic Energy Commission, $200,000,000, and the Veterans Administration, $230,000,000.

"The 1949 program is much larger than any regular program prior to the war—even though public works were being expanded just prior to the war to provide employment," the President commented.

"Some of the increase in volume results from an expansion in program objectives—direct federal construction of multiple-purpose flood control, irrigation, navigation and power projects, as well as Veterans hospitals and a new program in atomic energy construction," the chief executive added. "Likewise, federal-aid programs for hospital and airport construction have been added to, as have been federal aid for highways and loans for rural electrification.

"Some of the expenditure increase is also accounted for by the fact that construction costs have approximately doubled since 1939. These costs have shown an uninterrupted rise since 1939, with the steepest rise occurring since the end of the war.

"The construction industry is seriously affected by labor and materials shortages. . . . In some cases, contractors' bids must be rejected because they are too high in relation to agency cost estimates or available funds."

Army civil works funds

By far the largest requested appropriation for any one agency was the $471,683,750 for the Corps of Engineers—to be used for flood control and related work, and $191,767,000 for rivers and harbors operations.

The first figure may be compared with the slightly more than $298,000,000 appropriated for the current fiscal year, and the second with a $117,000,000 appropriation this year.

A detailed breakdown of the flood control request includes: $70,000,000 for operations of the lower Mississippi and its tributaries; $10,200,000 for Buggs Island reservoir on the Roanoke River; $8,400,000 for Clark Hill Dam; $9,900,000 for Allatoona Dam; $17,000,000 for Bull Shoals Dam; $8,000,000 for work in the Kansas City, Mo., area; $9,000,000 for Fort Gibson Reservoir in Oklahoma and an equal amount for the Harlan County project in Nebraska; $10,000,000 for Missouri River levees from Sioux City, Ia., to the mouth; $20,000,000 for Fort Randall Dam in South Dakota, and $30,400,000 for Garrison Dam on the main stem of the Missouri.

(*Continued on page 3*)

BUDGET FOR CONSTRUCTION

Major construction appropriations in 1949 federal budget (totals include supplemental appropriations for this fiscal year, but not future funds for which authority to make commitments was asked).

Department of National Defense	
Corps of Engineers—Civil Works	$663,450,750
Corps of Engineers—Military Work	175,000,000
Bureau of Yards and Docks—Military Work	25,000,000
Federal Works Agency	
Public Roads Administration	160,588,854
Bureau of Community Facilities	20,000,000
Public Buildings Administration	2,000,000
Department of Interior	
Bureau of Reclamation	240,661,000
Territory of Alaska	32,137,000
Bonneville Power Administration	23,225,000
Bureau of Indian Affairs	12,569,300
Atomic Energy Commission	254,315,837
Veteran's Administration	230,000,000
Federal Security Agency	
Public Health Service	81,500,000
Civil Aeronautics Administration	67,134,000
Tennessee Valley Authority	27,857,600
Department of Agriculture	25,869,200
National Advisory Committee for Aeronautics	20,000,000

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Public construction—Bids for the proposed United Nations headquarters to be erected between East 41st and East 48th Streets, *Manhattan, N. Y. City*, probably will be held up until the middle of the year by which time it is expected the U. S. Congress will have provided for the financing of the project. . . . Plans are being studied for a $2,000,000 hospital for *Edmonton, Alta.* . . . Work will start in a few weeks on the $1,300,000 School of Theology building at Boston University, *Boston, Mass.* . . . Construction of a 27-mile artificial beach on the Gulf of Mexico in *Harrison County, Miss.*, has been recommended by the Army engineers in connection with reconstruction of a hurricane-damaged seawall. . . . A $1,000,000 development is under way for the School of Fine Arts, University of Alberta, *Banff, Alta.*

Highways—An $11,426,000 bond election will be held Jan. 31 to finance a county road plan at *Dallas, Tex.* . . . The road budget of *Louisiana* for 1948 is more than $37,000,000, including $11,000,000 for maintenance. . . . On Jan. 31, *Houston, Tex.*, voters will pass on a $3,000,000 bond issue. Of this amount $2,500,000 would be used as additional funds to build the Pasadena tunnel under the Houston Ship Channel. . . . More than $43,000,000 will be spent in *Virginia* by the Department of Highways in 1948 of which $20,000,000 will be for construction on primary roads. . . . The state Division of Highways reports that *Illinois* let $33,320,000 in contracts last year, not including township, county or city projects. . . . John H. Lauer, chairman of the State Highway Commission in *Illinois* estimates that it will require $100,000,000 to replace 1,150 bridges classed as hazardous.

Industrial construction—An $80,000,000 synthol plant will be started soon in Western *Kansas* by the Standolind Oil and Gas Co. for conversion of natural gas to liquid fuels and chemicals . . . Titche-Goettinger department store has plans for a $4,500,000, seven-story addition to its store at *Dallas, Tex.* . . . Mac-Lean-Hunter Publishing Co., Toronto, Ont., is building a $2,000,000 plant at *Lansing, Ont.*, with the Foundation Co. of Ontario as general contractors. . . . Standard Chemical Ltd., Toronto, Ont., is planning a $2,500,000 plant at *Montreal, Que.*, to manufacture anti-freeze preparations. . . . H. K. Ferguson Co., New York, is preparing plans for a $10,000,000 pulp mill at *Blind River, Ont.*, for the Huron Forest Products Co., Ltd. . . . Final land preparation for the $6,000,000 North Shore Center, a 76-acre regional shopping development near *Beverly, Mass.*, will begin as soon as weather permits. Bids will be advertised in March and construction will begin around July 1. . . . The Consumers Cooperative Association will start work soon on a $1,500,000 dewaxing plant at *Coffeyville, Kan.* . . . A new $9,500,000 three-year construction program announced by the Empire District Electric Co., *Joplin, Mo.*, to bring its post-war expansion outlay up to $15,000,000 by 1950.

Housing—Work has started on 522-family project for Boston Post Road in *Stamford, Conn.*, sponsored by the First Stamford Corp. . . . A 44-family house is being built at 7005 Shore Road, *Brooklyn, N. Y. City*, by Castle Homes, Inc. . . . A 96-unit $800,000 rental apartment development will begin soon at *Tonawanda, N. Y.* . . . Three large housing projects have been announced recently in *San Francisco, Calif.* The Stoneson Development Co. has plans for a $30,000,000 village surrounded by 26 seven- and eight-story apartment buildings. No date has been set for the start of this project. Another company about ready to launch a $4,000,000 building program to provide 400 family units on 20 acres is R. D. Lang & Sons. The Standard Building Co. has prepared 110 acres on which will be built stores and dwellings. The San Francisco Planning Commission also recently announced a slum clearance program estimated to cost about $53,000,000. Under the state's redevelopment Act, the city may acquire the land, raze the building and prepare for development, but private funds must be used for final financing.

Press Assn. photo

***Bricklaying School**—A bricklaying class for building-trades apprentices gets down to actual work at the Pennsylvania Institute, Philadelphia, Pa., as part of a course in construction.*

THE COVER PICTURE

New 383-ft. high transmission towers to carry Pacific Gas and Electric Co. Lines across Carquinez Straits—between San Pablo and Suisun bays near San Francisco, Calif.—will withstand full dead end pull of six cables 4,805 ft. long, a maximum pull on each conductor of 17,000 lb.

The lines are steel-cored aluminum especially made for long spans and have a strength equal to three times normal load. The former crossing, strung from towers less than 200 ft. high is in background.

Power and irrigation—An electric power shortage caused by low water recently threatened to curtail operations employing thousands of workers in four northern *Vermont* counties. Governor Ernest Gibson has assigned Col. Paul A. Chase, chairman of the Public Utilities Commission, to seek emergency power. . . .Work has been started by Army Engineers on the foundations for the $23,000,000 Buford Dam, the second in the Chattahoochee-Flint-Appalachicola waterway project in the southeast. The multi-purpose dam will be 1,626 ft. in length with a paved highway across the dam.

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President seeks $2.1 billion budget

(Continued from first page)

Also: Wolf Creek Dam, Kentucky, $19,687,000; Conemaugh reservoir, Pennsylvania, $7,875,000, and Lookout Point Reservoir, Oregon, $7,000,000.

The Rivers and Harbors fund includes $109,350,000 for new construction and $78,862,000 for maintenance and operation. Biggest construction items are McNary Dam, for which $30,000,000 is requested; Chattahoochie and Flint River developments in Georgia and Florida, $5,000,000; Mississippi River between Ohio and Missouri Rivers, $10,000,000; Missouri River, $7,000,000 and $4,200,000 for Fort Peck Dam.

Additionally, the Chief Executive asked a supplemental appropriation of $165,000,000 in cash and $170,070,000 in contractual authority for the 1948 fiscal year, and $45,000,000 in cash plus contract authority totalling $65,000,000 for fiscal 1949 for national defense construction by the Corps of Engineers. The Navy's Bureau of Yards and Docks was to receive $25,000,000 for similar work.

$460,000,000 for roads

To advance improvement of the nation's highway system, $460,588,854 was asked for the Public Roads Administration of the Federal Works Agency; $20,000,000 for public works advance planning by the Bureau of Community Facilities.

The Atomic Energy Commission would receive $200,000,000 additional contract authority for 1948 and $254,315,837 in funds with $211,225,113 contractual authority for fiscal 1949. These appropriations would be used for construction of production, research and community facilities in accordance with AEC's $1.1 billion program (*ENR* Jan. 1, vol. p. 3).

Requested funds for Veterans Administration hospitals total $230,000,000, plus $43,000,000 in contract authority. Expenditures by the Corps of Engineers, which is helping the Veterans Administration in its hospital program, are estimated at $300,000,000 in the fiscal year 1949, and those of the VA itself at $112,000,000.

Going reclamation jobs favored

A $240,661,000 appropriation, strictly for construction, was recommended for the Bureau of Reclamation, which compares with an actual expenditure of $91,000,000 in fiscal 1947, an estimated expenditure of over $155,000,000 this year, and $231,000,000 anticipated next fiscal year. Most of the new appropriation will be spent on projects already under way, including $48,000,000 for the Columbia Basin, $63,900,000 for the Missouri Basin, $41,500,000 for Central Valley, $23,000,000 for Colorado-Big Thompson, and $24,000,000 Davis Dam. Other projects include: Anderson Ranch, $5,800,000; Hungry Horse Project, Montana, $9,850,000; All-American Canal, $4,484,000; Gila Project, $3,000,000.

Construction funds for the other Department of Interior agencies are: $23,225,000 in actual money, plus $13,050,000 in contract authority, for the Bonneville power transmission system; $9,750,000 for construction of facilities to produce snythetic liquid fuels by the Bureau of Mines; $7,414,150 in actual funds, plus $2,000,000 of contract authority, for the National Park Service for roads and physical improvements; a $7,370,000 supplemental appropriation and $4,000,000 contract authority for this fiscal year and $9,767,400 in cash and $6,944,000 in contract authority for fiscal 1949 for highways in Alaska. Also, $15,000,000 in money and $6,700,000 in authority is sought for reconstruction of the Alaska Railroad.

Civilian hospitals

To support the $1,000,000,000 civilian hospital and health center program being carried out by the U. S. Public Health Service, a $15,000,000 supplemental appropriation is sought for the present fiscal year, and $60,000,000 for 1949 for federal grants to local government groups, plus $75,000,000 in contract authority for that year. Cash appropriation of $5,000,000, and $25,630,000 in contract authority is also recommended to start the construction of the $34,000,000 general medical research center planned for Bethesda, Md. In addition, PHS is seeking a $1,000,000 fund for stream pollution control.

To advance the $1,000,000,000 civilian airport construction program of the Civil Aeronautics Administration, a total of $67,134,000 is wanted. Forty million dollars will be spent as grants for construction of airfields, $23,099,000 for building air navigation facilities, $1,835,000 at the Washington National Airport, and $2,200,000 for Alaskan work.

The National Advisory Committee for Aeronautics has asked $10,000,000 in money and $18,200,000 in contract authority for new construction and equipment. An added $10,000,000 in funds and $30,000,000 in contract authority is also sought for supersonic research facilities. Most NACA construction will be at Langley Field, Va., Cleveland, Ohio, and Moffett Field, Calif. Construction of a $10,000,000 aircraft propulsion science laboratory at Cleveland is a new project planned.

$28,000,000 for TVA

A $27,850,600 fund for the Tennessee Valley Authority would be used largely to advance construction of Watauga and South Holston dams. TVA will also start a $54,000,000 steam generating plant on the Tennessee River, directly west of Waverly, Tenn.

Other appropriation requests include: $9,000,000 for general flood control by the Department of Agriculture; $16,869,200 for roads and trails by the same agency; $1,750,100 for the International Boundary and Water Commission (U. S. and Mexico).

No new money is included for housing construction.

For all of the federal agencies for preliminary surveys pertaining to construction projects, a total appropriation of $18,556,442 is recommended. Of this amount, $6,000,000 would be for the Bureau of Reclamation, $3,500,000 for flood-control surveys by the Army Engineers, $1,900,000 for rivers and harbors studies by the corps, and $2,070,000 for flood-control surveys by the Department of Agriculture.

A total of $13,047,000 is also made available to the various agencies for advanced planning. Most of this covers detailed plans for river basin projects of the Corps of Engineers and the Bureau of Reclamation.

A further appropriation of $18,622,390 is sought for topographic mapping and for assembly of hydrologic data. This figure compares with $13,976,000 appropriated for these purposes for this fiscal year.

NO EXTRA FUNDS FOR PANAMA CANAL, INTER-AMERICAN ROAD

In submitting his record-breaking budget request to Congress, President Truman asked only $5,475,000—normal operational construction funds—for the Panama Canal. Although Mr. Truman mentioned that Congress recently received a report recommending improvement of the canal as a sea-level structure at a cost of over $2,400,000,000 (*ENR* Dec. 11, 1947, vol. p. 787), he asked no funds to start this work.

And although he had asked last summer for funds to complete the Inter-American Highway through Central America (*ENR* July 17, 1947, vol. p. 79), the President included no appropriation for that work in funds asked for the Public Roads Administration.

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Venezuela opens purchasing mission offices in United States—Puerto Rico approves $5.6 million hydro project

Venezuela—The Ministry of Public Works, the National Institute of Sanitary Works and the University City Institute have opened a joint purchasing commission office in New York City, to carry forward a tremendous construction program of public buildings, roads, highways, aqueducts and other enterprises for the Venezuelan government.

The joint commission is empowered to purchase materials for use in Venezuela, and is pooling resources to avoid duplication.

A part of the purchases may be made for an extensive port rehabilitation program now under discussion by the National Assembly (*ENR* Dec. 4, 1947, vol. p. 769).

Two civil engineers, Enrique Gonzalez Navas of the Ministry of Public Works, and Daniel Camejo of the National Institute of Sanitary Works, and Alberto Gil-Borges, an architect representing the University City Institute, are directors of the purchasing mission. Materials which are now sought in quantity include: asphalt paving equipment, cast iron pipe and fittings, cement, equipment for water treatment plants, elevated water tanks, hardware for building and housing construction, highway and road construction equipment, hydro-electric plants, plumbing equipment, sewage treatment plant equipment and sanitary fixtures, tractors, trucks and trailers of all sizes, water meters and manhole covers.

The commission office is on the fifth floor of the Fisk building, 250 West 57th St., New York City.

Power . . . .

Puerto Rico—The Puerto Rico Planning Board has approved the $5,600,000 El Yunque hydro project in the north and western areas of Luquillo national forest.

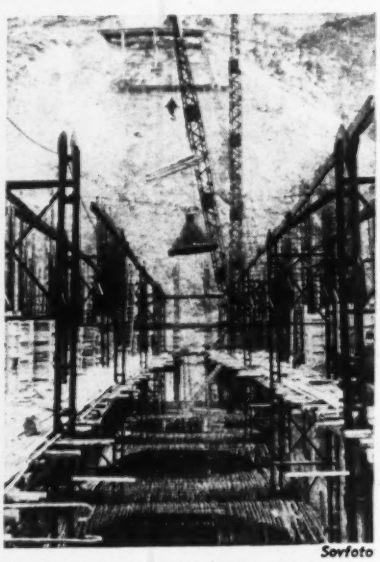
The project will consist of a collection system utilizing pipelines and conduits of the run-off of about 11.6 sq. miles of drainage area in a region which is subject to the highest rainfall on the island. The run-off yield will be impounded in a seasonal storage and regulating reservoir of 6,300 acre-ft. capacity on the Cubey river, a tributary of the Canovanas river.

From this reservoir, the waters will be directed downstream through a pressure conduit along the right bank of the Cubey river for nearly two miles, and then dropped through a 7,000 ft. penstock and pressure tunnel to two power plants along the Canovanas river. Normal power production is estimated at about 55,000,000 kw.hr. annually, of which some 39,000,000 kw.hr. will be firm energy.

Mexico—One of the largest diesel electric plants in the world is now under construction to furnish power to Mexico City. Housed in a single building will be six of the most powerful single acting, two-cycle diesel engines ever built in the United States, capable of generating 30,000 kw. at Mexico City's 7,400 ft. elevation.

The equipment is being manufactured by the Nordberg Mfg. Co. of Milwaukee, Wis., which will supply all mechanical equipment for the plant at Tacubaya, on the outskirts of the city. Generators and switchgear equipment are being supplied by the General Electric Co.

Power requirements of the city have recently been met by a number of hydro-electric plants, but the lack of rainfall recently has brought the possibility of a serious power shortage. Steam plants to augment the hydro power are now under construction and the government decided on construction of the diesel plant as an added safeguard.



Sovfoto

***Russian Power Station**—To aid in electrification of railways and industry in Russian Georgia, near the Black Sea, engineers are rushing construction of the Khrami River hydro station at Tibilissi. The station will perform as a regulator for existing plants, being brought into operation in normally dry summer months.*

Housing . . . .

Mexico—Housing for Mexico's railway workers—the second most numerous trade union group in the republic with 57,000 members—has been assured attention by the Mexican government.

Maclovio Pina, chairman of the committee of the National Railroad Workers Union, said that President Miguel Aleman approved plans and a cost budget of $9,250,000 for the construction of model homes for 2,500 families at Azcapotzalco, a Mexico City suburb. Plans for similar colonies are being made for the key provincial railroad centers at Queretaro City and Chihuahua City, Mr. Pina added.

Miscellany . . . .

India—Work is scheduled to start this year on a $150,000,000 electric railway project that will start in the heart of Calcutta and circle the city completely. Twenty-five miles of the line will pass through the city, and surveys have been completed to enable that portion to be placed on a high-level viaduct.

Argentina—The Dravo Corporation of Pittsburgh, Pa., has been granted an order from the Argentina Ministry of Public Works for ten welded steel sand and gravel barges. The barges, to measure 132½ ft. x 36 ft. by 9½ ft., are to be fabricated at the Dravo Company's Neville Island plant and shipped to Buenos Aires.

This equipment is to augment a fleet of three push-towboats, four sand and gravel barges and ten covered hopper barges previously ordered by Argentina. The vessels will be used to pioneer in the adoption of the "push-towing" method in South America and will be used principally on the Parana, Uruguay and Paraguay Rivers.

The first towboat and its complement of barges has already been delivered at Buenos Aires and is in service.

Report shows material production rise

Production of construction materials in October, 1947, as measured by the Department of Commerce's monthly composite index of 20 selected materials, rose sharply from the level reached during the previous month. Nineteen of the 20 materials registered production increases in October.

Among the materials that recorded postwar monthly peaks during October are several that have been considered in short supply in the recent past, including hardwood flooring, gypsum lath, cast iron radiation, clay sewer pipe and softwood plywood.

Of the nine materials that did not record postwar peaks during October, five recorded lower production than during the corresponding month of 1946, including lumber, structural clay tile and gypsum board (not including lath). According to the department's December report on construction and construction materials, it appeared likely that 1947 output of several materials would exceed previously established all-time peaks.

Cement production reached its all time peak in 1942 with 182.8 million barrels. During the first 10 months of that year 152.4 million barrels were produced compared with 153.6 million barrels during the corresponding period of 1947. It appears certain that output during the last two months of 1947 will be at least as high as that during the last two months of 1942. The industry reports continued heavy demands resulting from high residential and industrial construction and a greater use of concrete caused partly by high prices of other building materials. Favorable weather conditions have kept up demand longer than usual in areas where building normally drops off during the cold weather. In addition, cement stocks have fallen to unusually low levels and production probably will continue high in order to replenish stocks, and supply large consumer demands.

Recommendations made on Northwest dams

In a statement intended to clear away confusion concerning the report of the Columbia Basin Inter Agency committee on Columbia River dam problems, Col. Theron D. Weaver, division Army engineer, explained that the committee's recommendations leave the way open for construction of four proposed dams on the lower Snake River, as well as previously authorized dams.

The committee, Colonel Weaver said, recommended that there be no moratorium of dams presently authorized by Congress, which include the McNary, Foster Creek, Hungry Horse and Detroit dams. McNary Dam, on the Columbia, already is under construction, and work is getting under way on the Hungry Horse dam in Montana and the Detroit dam in Oregon.

In seeking a solution of the fish vs. power problem, Colonel Weaver explained, the committee urged that efforts be made to obtain authorization of upstream dams on the Columbia and Snake and that these dams be constructed ahead of proposed dams on the middle Columbia which have not yet been authorized. Location of these proposed dams are at The Dalles, Arlington and John Day, Ore.

If, however, a workable solution is found to the fish problem, or if their construction is required for national defense, work on the mid-Columbia projects should proceed as required, the committee proposed.

Flood protection assured on Arkansas River

Flood control protection for all the more valuable acreages along the Arkansas River on which levee construction has been requested by land owners and found economically justified by engineering surveys is now within sight, Army engineers said last week.

Col. Gerald Galloway, Little Rock, Ark., district engineer, pointed out that all present authorized levees on the Arkansas River can be completed during the 1948-49 fiscal year, provided Congress repeats last year's Arkansas River levee appropriation of $4,500,000.

Urges multi-purpose dam for Pend Oreille River

Construction of a $27,000,000 multi-purpose dam on the Pend Oreille River at Albeni Falls in Idaho has been recommended by Col. Theron D. Weaver—division engineer at Portland, Ore., for the Corps of Engineers—in an interim report authorized by Congress following a series of hearings which began in 1943.

The proposed dam would regulate Pend Oreille Lake, together with local flood control, conservational and recreational benefits. Additional benefits would be realized in navigable reaches of the Columbia River.

Producers' group reports 800,000 homes in 1947

The private building industry completed approximately 800,000 permanent nonfarm dwelling units in 1947 and started an estimated 860,000 units during the year, reports David S. Miller, president of the Producers' Council, national organization of building products manufacturers.

"The number of homes completed was 82 per cent above the 1946 total and was the highest since 1926," Mr. Miller said. "The 1947 record has been exceeded in only three past years.

"Of the 860,000 houses started during the year, nearly three-fifths were reported after July 1, the date on which emergency controls over home building were removed. During the last-half of the year, the number of starts was at a rate of almost one million units a year or greater than in the peak year, 1925, when 937,000 units were started.

"The council's economists estimate that about 870,000 new houses will be started in 1948. Attainment of that estimate would mean that 2,400,000 new units had been started in the first three years after the war, as compared with only 1,100,000 starts in the first three years after World War I."

Engineer firms to bid on R. I. sewage project

The Blackstone Valley Sewer District Commission has asked five engineering firms to bid on preliminary survey and report work on the first phase of the Narragansett Bay pollution project.

Last June, Rhode Island voters approved a $5,000,000 bond issue to finance creation of the district, which will build a plant to process sewage from Pawtucket, East Providence, Central Falls, Cumberland and Lincoln. The engineers will be asked to submit an engineering proposal showing the extent of the commission's project, length of sewer trunk lines, general topography, pumping station and treatment plant needs, methods of dealing with wastes, cost estimates and other information. William J. Halloran of Pawtucket is chairman.

At the State Office Building in Providence Chairman Halloran said that 30 engineering firms had asked permission to make the preliminary survey and report. The firms authorized are: Charles A. Maguire & Associates, Providence; Metcalf & Eddy, Boston; Havens & Emerson, New York; Camp, Dresser & McKee, and Fay, Spofford & Thorndike, Boston.

Arbitration panel awards pay raises in settling Arizona construction fight

Award orders changes in union rules, criticizes labor and constructors for failure to arbitrate—Other labor developments

In an action seen as of unusual importance to the nation's construction industry, a three-man arbitration board in Arizona last week brought in a decision granting pay raises to some 3,500 construction workers and affecting four leading contractors' groups.

The award, which gave a general 20-cents-an-hour increase to all members of the six Arizona building trades unions, but which also ordered some changes in union procedure, was immediately accepted by the labor group and it was indicated that the employers would also accept. Because the wage award was made retroactive to August 5, it was estimated that each worker is now entitled to a minimum of about $150.

Unions, Contractors criticized

The two-to-one ruling was highly critical both of the unions and the four contractor associations for their failure to bargain collectively. It grew out of a statewide, 25-day tie-up of construction projects last summer (*ENR* Sept. 11, 1947, vol. p. 360), which started with a declaration by the union that the Del E. Webb Construction Co., largest operator in the state, was unfair. In September the unions agreed to submit working rules as questions of arbitration—a move said to be the first of its kind in the United States.

Only two of the six issues submitted were ruled upon by the board, these concerning wages and union rules. Four other issues—"featherbedding," a reduction in the number of worker classifications, provisions against work stoppages, and establishment of apprenticeship training programs—were left open for bargaining.

Order rule changes

The wage increases met the demands of all unions excepting the carpenters, who had asked a 25-cent hourly increase. The board additionally ordered several changes in union rules, including: An amendment to carpenters' rules calling for a steward on the job, to permit firing of the steward for cause and to require that the steward must be capable of doing the work involved; teamsters and engineers were required to amend rules binding operating engineers and truck drivers to help repair broken equipment at their regular pay until the end of the shift; and all unions, with the exception of ironworkers, were ordered to adopt a rule relating to visiting the job by business agents, requiring them to advise employers of their presence and prohibiting them from job interference.

Rule changes ordered

The unions additionally were required to adopt a uniform "show-up" rule, allowing any employee showing up for work two hours pay unless he is notified the previous day that no work is available.

Other provisions included a compromise between union and industry terms by setting up a schedule calling for carrier transportation for work 25 to 50 miles from the union hall; area transportation plus one-half day's pay for work 50 to 100 miles away, and transportation plus one day's pay for work 150 miles away and over.

The report directly affected operating engineers, laborers, truck drivers, carpenters, cement finishers and ironworkers. Contractor groups include the Associated General Contractors, the Arizona Building Contractors, the Tucson General Contractors and the Yuma Builders and Contractors and Subcontractors Association.

Regarding industry demands for certain changes to increase worker efficiency, the board said:

"A majority of the board is of the opinion that (it has) no . . . power with respect to this issue. We cannot order men to be efficient, or unions to find more skilled craftsmen than exist."

Negotiations in other regions

While Arizona looked for settlement of its construction labor troubles for the time being, other action began to become apparent on the labor front.

At Milwaukee, building trades workers and employers prepared to open negotiations on new contracts. AFL representatives predicted that renewal of closed shop provisions of labor contracts would constitute a major issue.

At Wilmington, Del., representatives of contractors and about 2,000 building trades workers in seven crafts in Delaware opened negotiations for new agreements.

A jurisdictional strike involving three AFL unions—the electrical workers, pipefitters and plumbers—was tying up the conversion of the Northern States Power Company's St. Paul, Minn., gas distribution system from manufactured to natural gas. The dispute centered around which group has the right to make pipe connections for the new facilities, and picket lines were being observed by teamsters, thus effectively cutting off deliveries.

Some settlements

AFL plumbers and steamfitters who had been on strike at a new plant being built for Bond Stores, Inc., at Rochester, N. Y., returned to work ending a five-week walkout. Under an agreement reached with the contractor, maintenance and supervision of temporary heating will be done by union members on a three-shift, 24-hour, 7-day schedule for duration of the heating season.

Two bids received for Delaware bridge

The bid of $12,896,375, submitted by the Dravo Corporation of Pittsburgh, Pa., was the lower of two offers opened at Wilmington, Del., Jan. 6 for the construction of two anchorages and two tower piers—a major task in building the $40,000,000 Delaware River Memorial Bridge between Wilmington, Del., and Salem County, N. J.

The other bid, submitted by Merritt, Chapman and Scott, of New York City, was for $13,338,359.

The bid of the Dravo Corporation included: West anchorage, $4,940,370; the two tower pier foundations, $4,072,235 and the east anchorage, $3,883,770.

Lieut.-Gen. Eugene Reybold, (USA, ret.) director of the project, said the bids were "somewhat above" estimates.

Connecticut to start West Rock tunnel

Commissioner G. Albert Hill of the Connecticut Highway Department has announced work is scheduled to start soon on a twin-bore, 4-lane, 1200-ft. tunnel through West Rock, New Haven, last connecting link between the Wilbur Cross and the Merritt Parkways.

Bids were opened Dec. 22, with L. G. DeFelice & Son, Inc., North Haven and the Gull Contracting Co., New York, low on a bid totaling $1,934,203.

The tunnel will be lined with tile for a distance of 8-ft. above the curbing. A ventilating system will be installed with outlets at spaced intervals in the tunnel. Commissioner Hill announced that the tunnel will be completed in 1949, at which time the approaches will also be ready.

NLRB writes first major decision relating to professional employees

Time-study men held to be professionals under Taft-Hartley Act, entitled to be represented by an independent association

A decision that should help materially in clearing up the status of professional men under the Labor-Management Relations Act of 1947 (the Taft-Hartley Act) was rendered by the National Labor Relations Board on Jan. 2. It related to the Time and Motion Study Association, an independent labor organization representing 17 men employed by the Worthington Pump & Machinery Corp. of Holyoke, Mass. The board held that the time-study men, who determine the standards on industrial operations for computing incentive bonuses, are professional employees eligible to participate in labor organizations under full protection of the act.

The company had held that the time-study and standards employees are management representatives and that they therefore are not guaranteed the right of self-organization for collective bargaining under the law. However, this decision was rejected by the majority of the board who said, "We conclude that the principal function of these employees is, by utilizing their training and experience, to determine the factual basis for the operation of the company's incentive wage plan. They are, therefore, essentially fact-finders. Although it appears that they exercise considerable judgment and discretion in the performance of their duties, they do not do so to any substantial degree in the formulation, determination, or effectuation of management policies. We therefore affirm our earlier conclusion that the individuals here in question are employees within the meaning of Section 2(3) of the act, and that they may properly constitute an appropriate unit for the purpose of collective bargaining." Section 2(3) of the act defines the term employee.

The majority opinion went on to say "The statute itself refutes the company's contention that employees like the ones in question are to be deprived of employee status because of the nature of their duties; for, by express language, a professional employee is defined, in part, as any 'employee engaged in work . . . involving the consistent exercise of discretion and judgment in its performance.'"

In its formal release announcing the decision the board said that it had held that these men are professional employees "who, under the new law must always vote separately before they can be included in a bargaining unit with other employees. They have done so in this case, as the unit established in 1946 was limited to the time-study group."

Concurring opinion

James J. Reynolds, Jr. and J. Copeland Gray filed separate concurring opinions in which they emphasized that the time-study men stand in close relation to management. Mr. Reynolds based his concurrence on the fact that the association is an independent and unaffiliated labor organization. He said "It is imperative that these employees who represent management not only in the conduct of time studies but in grievance procedure should not be represented by the same organization which represents rank and file employees. There must be no room for compromise in loyalty on the part of such employees." He added that the board's certification should be continued only so long as the association maintains its present independent character.

Mr. Gray, in his opinion, said "It is my belief that, although time-study employees are professional employees as the Congress has classified them, they are also an integral part of management."

Sell 70,000 prefab homes in 1946 and 1947

In 1946 and 1947, the Prefabricated Housing Industry sold approximately 70,000 new permanent homes, the Prefabricated Home Manufacturers' Institute has reported. Shipments from American plants producing prefabricated homes amounted only to about 1,000 units per month at the beginning of 1946, but increased steadily until they equalled 4,000 units in October of 1947. A recent survey showed that these homes were relatively low in cost, the high-quality homes selling without land and utility improvements at price of about $7,000.

Approximately 80 companies are now actively engaged in the manufacture of prefabricated homes, with a total capital investment of about $60,000,000, it is further reported. Total production capacity of these companies is about 120,000 homes per year.

Dealer-erectors for prefabricated homes are a large and expanding group, according to a current PHMI survey of the industry. Thirty-seven firms which have reported thus far show a total of 1,103 dealer-erectors authorized to sell houses in 1947.

Only six firms reported that they operate without dealers in distributing their homes. In 1948, according to the survey, the firms having no dealers expect to ship 4,900 homes if materials are available, while the firms using dealers report an expected total of 22,000 houses.

ALSO RECORDED . . . .

There are limits for even the most enthusiastic sanitary engineer. He shouldn't, for example, make the effluent from disposal plants purer than the water into which it is dumped. A recent Cleveland, Ohio city council report said the city could save money by a little less treatment of sewage—which now emerges from the plants in better condition than the waters of Lake Erie.

Man's efforts to make rain have had the expected results. A rancher near Reno, Nevada, submitted documents to the state engineer's office claiming water in all clouds passing over his land; and the Salt Lake City, Utah, Chamber of Commerce threatened suit against Nevada on the ground that Nevada had no right to "milk" clouds that would normally drop their water on Utah's mountain ranges.

Rising construction costs were blamed, but the question at Niagara Falls, Ontario, seemed to be a decision between the sick and the dead. Voters turned down a proposal for enlarging their hospital, but approved enlargement of the cemetery.

Engineers operating San Diego's brand-new $14,500,000 aqueduct were able to sigh in relief last week and file a weighty problem under the heading "solved." The problem was minnows. Millions of the tiny fish had accumulated at Parker Dam, 200 miles away and enthusiastically began to gum up automatic air valves of the control system when testing of the aqueduct began. After several weeks, enough minnows had been sluiced out of the reservoir to end the trouble.

Thieves with unbelievably big ideas entered the yard of Giulio Argentieri Seattle, Wash., heavy contractor, and walked off with 10,200 lb. of metal in three pieces. Missing were: Two pull-shovel buckets, weighing 1,000 and 1,200 lb. respectively, and an 8,000 lb. iron frame used in street excavation work.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Federal Works Agency lists sales of facilities to municipalities—Planning activities include smoke abatement programs—Much highway and street work projected—Urge establishment of aviation commission at St. Louis

The Federal Works Agency has sold 601 hospitals, schools, water and sewer works and other community facilities constructed and equipped under the Lanham Act in war-congested areas, according to Maj. Gen. Philip B. Fleming, Administrator.

From these sales, the federal government realized $26,526,000—about 32 percent of its original expenditure on the projects.

The bulk of the projects were sold to local governmental agencies. Among those disposed of were 86 schools, 108 hospitals and nurses' homes, 62 water projects, 42 sewer projects, 224 recreational buildings, 62 fire and police facilities, and seven miscellaneous projects. Revenue-producing projects — such as waterworks, sewers and hospitals — were largely sold for a price based upon the net revenue producing ability.

Biggest purchasing of facilities was in Virginia where more than $16,450,000 was spent for communities purchasing 34 facilities.

Solutions for parking

Turning in every direction for solutions to the problems of providing space for automobiles in downtown areas, cities continued to produce varied solutions.

Houston, Tex., considered building a $2,000,000 six-story parking garage to span a bayou running through the city's center. Space would be provided for 1,500 cars.

Denver, Colo. studied a private survey submitted to the mayor urging issuance of $7,000,000 in bonds to finance four city-owned parking lots and 15 public parking garages. In Detroit, a four-man parking authority will be appointed to start construction of a 750-car underground garage in the downtown area and supervise operation of city-owned parking facilities, and Milwaukee, Wis. discussed an ordinance to create a seven-man parking commission with similar responsibilities.

Ann Arbor, Mich. voted a bond issue of $330,000 to enlarge its first publicly owned parking area, opened in 1941, and to open two new areas. Bonds will be retired from parking meters—the one 124-car lot now in operation nets about $400 a month.

Toledo, Ohio, heard a suggestion by its City-County Plan Commission to roof over one of its downtown streets for use as a parking area.

Urge aviation board

Establishment of an independent city aviation commission exercising all city powers relating to aviation, has been recommended to Mayor A. P. Kaufmann of St. Louis, Mo.

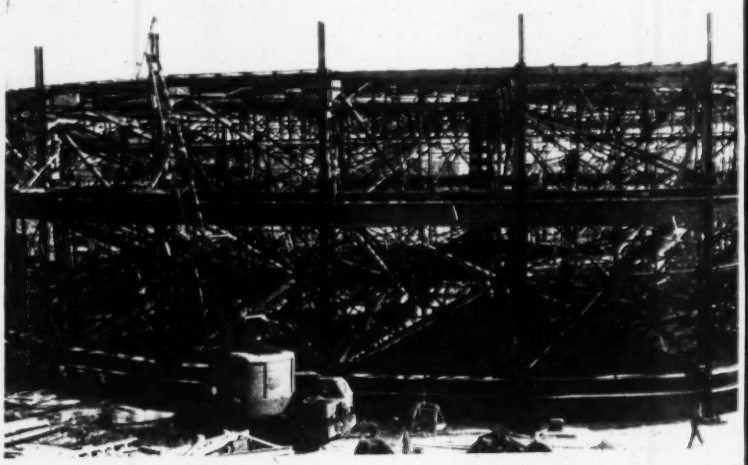
The recommendation was contained in an exhaustive survey of the city's aviation problems prepared by the Governmental Research Institute in an effort to untangle the present confused situation in handling the city's airport and related problems. Under the present set-up, the report said, excessive delays have been reported in securing decisions on important matters and capital outlays decided upon must be approved by more than 50 persons before they can be made.

Meanwhile, other areas were planning additional airport work. A major airport with two 6,000-ft. runways is now being planned for construction near Waldorf in Charles County, Md., and the Indiana State Aeronautics Commission reported that about $2,500,000 is scheduled for public airport improvement and enlargement projects in the state during 1948. New airports are planned by Gary, Valparaiso, Wabash and extensive improvements to be made at South Bend, Fort Wayne, Indianapolis and other cities.

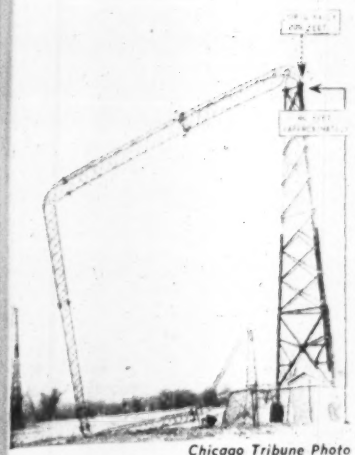
Smoke control

Milwaukee, Wis., made plans to clear through a new smoke control ordinance about the middle of February, after the arrival of a smoke control expert hired to become director of a county smoke control department.

The expert, John L. Hodges, of Jersey City, N. J., is already in Mil-



***Gas Holder**—A new waterless gas holder of 11,000,000 cu. ft. capacity is now under construction in Jamaica, New York City, to serve greatly increased demand on the facilities of the Brooklyn Union Gas Co. The holder will be 265 ft. high, 800 ft. in circumference and cost about $1,250,000. Nearly 3,360 tons of steel will go into the all-welded structure. Roof trusses have been inverted to provide a flatter roof to comply with city building height requirements in the vicinity of airports (La Guardia Field is a few miles away*



Chicago Tribune Photo

Ice Damage — Following closely on the heels of abnormal snowfalls (ENR Jan. 8, vol. p. 25) ice and sleet storms struck throughout the northeast and in sections of the midwest. The storms brought down overhead electric wires, telephone cables, signs, towers and other structures. The radio towers above, outside Chicago, Ill., were 200-ft. steel structures, designed to withstand pressures of 20 lbs. per sq. ft. on the exposed area, plus a 50 percent overload. Higher towers of heavier construction withstood the effects of high winds and ice.

waukee, and is expected to take over his duties about March 1. Completion of the ordinance itself has been held up pending Hodges arrival for consultation.

While Milwaukee went ahead with its plans, Minneapolis, Minn., considered recommendations for a new smoke abatement ordinance to control dust, fly-ash, and odors.

At St. Louis, Mo., despite the protest of the city comptroller, city officials decided to approve a trip by Smoke Commissioner James H. Carter and Associate City Counselor James V. Frank to various cities to study the effects of their anti-fly ash ordinances, as a preliminary to passage of a similar law for St. Louis.

City planning

Representatives of four governmental agencies at Seattle, Wash., voted to set up a coordinating board to act in an advisory capacity to the city planning commission. Each of the four agencies—the King County School District, the port of Seattle and the Seattle Transit System—will designate a member of its technical staff for membership on the board. The state highway department will also be represented.

Norfolk, Va., adopted a new performance-type building code expected to save 15 percent in local construction costs by permitting much broader use of prefabricated and other recently developed building materials. The new law replaces an outmoded ordinance passed in 1919.

Highway, street plans

Following the lead of state highway departments, which have been announcing programs for the coming construction season, many cities last week were well advanced on new schemes.

Among announcements during the week were:

Dallas, Tex., authorized issuance of $139,500 worth of time warrants to finance repair of bridges and roads; the Buffalo, N. Y., City Planning Commission recommended inclusion of a high level bridge over the Buffalo River in the state's five-year program of arterial improvements for the city; Jefferson County (Beaumont), Texas, said it had authorized a $6,000,000 county-wide bond issue to cover new paving on county roads; Chicago, Ill., began work on rehabilitation of the Michigan Avenue viaduct; Toledo, Ohio, officials were told that at least a year of engineering research will be necessary before definite plans for a proposed $12,500,000 bridge in north Toledo and the proposed freeway can be prepared.

The Tennessee State Highway Department announced it had contracted with two Chicago firms to plan modern systems of through traffic routes in Knoxville, Nashville, Chattanooga and Johnson City. The two firms are H. W. Lochner & Co. and De Leuw, Cather & Company. Louisville, Ky., plans to raze 86 buildings along the route of the proposed Eastern Freeway through the city; Mayor Kennelly of Chicago approved start of construction work on the Congress Street superhighway near the elevated railway track at the LaSalle Street station.

Water, sewer projects

San Diego, Calif., called for bids on February 3 on work in connection with its proposed Alverado water filtration plant, to treat Colorado River water. The $450,000 contract would include work outside the building, such as site grading; underground piping for sewers, tile drains and large quantities of reinforced concrete water pipe. Bids for construction of the plant building itself, to cost about $1,800,000, will be asked during the latter part of 1948.

Completing an eight month survey of water systems of Erie County (Buffalo), N. Y., the consulting engineering firm of Havens & Emerson recommended a comprehensive plan calling for expenditure of more than $15,000,000.

A major feature of the plan will be construction of two large transmission mains for carrying water from a proposed plant at Tonawanda and the existing Buffalo system into suburban areas. The plan recommended that towns surrounding Buffalo should be included eventually in the area served by a coordinated water system.

The City of Quebec, Canada, proposed extensions and improvements to its waterworks system on the basis of a ten-year plan at an estimated cost of $6,000,000. Proposals include construction of a new filter plant to cost $1,000,000, construction of a 10,000,000 gallon reservoir in the west end of the city and cleaning and extending the water distribution system.

Baltimore's paving program

Complete reorganization of the municipal Department of Highways in Baltimore, Md., has been ordered by Mayor Thomas D'Alesandro, "to get the city's rapidly disintegrating streets paved at lower cost than under existing practices."

To carry out the program, the Mayor named Deputy Director of Public Works George Carter as his personal representative to oversee the project, and Highways Engineer J. H. McCay to carry out the reorganization directive.

Bans private surveys

The City of Erie, Pa., announced recently it will move at once to prevent transitmen and other personnel in the city engineering bureau from conducting surveys of privately owned property.

Mayor G. H. Ross said that city employees should work only for the city and pointed out that once city employees engage in private work, they delay completion of city projects.

DON'T REFUSE REFUSE

The town of Rockville Centre, L. I.—a suburb of New York City—last week appealed for bigger refuse collections.

The city is making money out of recovery of scrap, and doesn't want to lose this source of revenue.

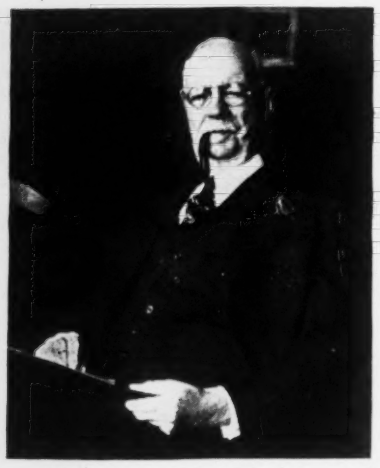
Robert Woodcock, superintendent of the town's sanitation department, distributed leaflets with bills from the municipally owned electric light plant pointing out that during the war the city received $80,356 in five years from materials "rescued from the refuse."

C. S. Hill, widely known construction editor, dies

Charles S. Hill, who probably did more than any other engineer to reduce the seasonal peaks in construction, died at his home in Long Branch, N. J. on Jan. 7, in his 80th year.

He had retired from active work on the staff of this journal in 1940 after 52 years of editorial work, chiefly with *Engineering News* and *Engineering News-Record*.

Mr. Hill is best known for his long advocacy of winter construction and for the many articles he prepared for this journal describing methods of doing construction work during what were considered to be "layoff" months. These articles formed the basis for a book entitled "Winter Construction,"



C. S. HILL

which he published in 1928. But before the turn of the century he had made a notable contribution to the advancement of construction techniques through his analysis of the mechanization of earthmoving operations on the Chicago Drainage Canal, the greatest earth-handling job prior to the Panama Canal. These articles also were reprinted in book form and were used extensively by contractors who bid on the Panama work.

"Judge" Hill, as he was affectionately known by thousands of construction men, also took an active interest in improving and expanding the use of concrete in general construction, giving special attention to reinforced concrete when little was known about that material. In 1904 he published one of the early texts on reinforced concrete. This was followed in 1908 by a book on concrete construction and a year later by one on concrete inspection.

In more recent years Mr. Hill devoted much time to flood control on the lower Mississippi River and to related problems such as the construction of levees and cut-off channels. He also took an active interest in improving methods of highway construction.

Born in Fairfield County, Vt., in 1863, C. S. Hill studied civil engineering and English literature at the University of Vermont. Shortly after graduation in 1888 he joined the editorial staff of *Engineering News* at New York. Five years later he was sent to Chicago to open an office for the journal there. In 1897 he was brought back to New York to devote his attention to the then new science of reinforced concrete construction. He resigned in 1906 to return to Chicago as managing editor of *Engineering and Contracting*. Subsequently he published the *Contractor's Review* and then was editor of the *The Contractor*. That paper was purchased by the McGraw-Hill Publishing Co. in 1918, shortly after the consolidation of *Engineering News* and *Engineering Record*, at which time Mr. Hill became one of the associate editors of the consolidated papers.

Wolff elected chairman of building code group

Joseph P. Wolff, Commissioner of the Department of Buildings and Safety Engineering of Detroit, Mich., has been elected chairman of the board of governors of the Building Officials Foundation for the year 1948, succeeding Andrew J. Eken, president of Starrett Brothers & Eken, New York building firm.

Mr. Wolff became commissioner of the Detroit building department in 1930, a position he has held since. Prior to that time he was engaged in building work in Detroit.

The Building Officials Foundation was established in 1946 to effectuate building code reform in American cities.

Advance work started on Feather River tunnel

Preliminary work has begun on a $5,000,000 tunnel project in Pacific Gas & Electric Co.'s $61,800,000 Feather River hydroelectric development. T. E. Connolly, Inc., San Francisco, has been awarded the contract for 17,800 ft. of 26-ft. horseshoe tunnel, all to be driven through solid granite.

The tunnel will feed the company's new Cresta hydroelectric plant, late in 1949.

City gets damage money in private dam failure

A suit for $1,200,000 against the Central Vermont Public Service Corp. account of flood damages resulting from a bursting dam has been settled by the city of Rutland.

The East Pittsford Dam, owned by the power company, collapsed in a flood last June (*ENR* June 12, 1947, p. 921) and damaged about 500 Rutland homes and business establishments.

The Board of Aldermen agreed to accept the power company's offer of $287,500, with the state to pay an additional estimated $60,000 for the construction and replacement of bridges.

Washington State seeks aerial road survey bids

The Washington State Highway Department has contracted for aerial survey of one highway section and is receiving bids for a similar job.

Already under contract is the survey of some 13 square miles between the Wenatchee River bridge and Dryden, to be completed in two months. The survey will cover all highways on both sides of the Wenatchee river and lands that might have to be purchased by the department in revamping the highway alignment.

The section out for bids consists of Franklin and Benton counties.

Canadian provinces review 1947 road work

Construction of 224 miles of new highway was completed in 1947 in British Columbia, according to E. C. Carson, Minister of Public Works. In addition, close to 300 miles of hard surfacing has been laid, out of the $2,250,000 paving program allocation made possible by assumption by the Province of the dominion government's wartime 3-cent gasoline tax last spring.

Although favored by weather, the department was handicapped all year by acute shortage of labor and supplies, the minister said, particularly in connection with bridge construction. Foundations have been laid for a large number of bridges, but completion of work was not possible due to delay in delivery of steel.

Manitoba's Department of Public Works in 1947 completed a $3,700,000 road building program which represents 70% of the road work contracted last spring compared with 40% completed in 1946.

Geological society devotes sessions to discussion of engineering geology

Ottawa meeting departs from custom to hear of interrelation of matters and civil engineering.

Inaugurating a policy radically different from its previous practice, the Geological Society of America devoted a large part of its 60th annual meeting to engineering geology.

This meeting, held in Ottawa, Ont., Dec. 29-31, was the first at which part of the program was arranged by the society's new section on engineering geology. The section also held its organization meeting in Ottawa, electing Charles P. Berkey, professor emeritus of geology at Columbia University chairman; Sidney Paige of the U. S. Engineer Department, vice-chairman, and Roger Rhoades of the U. S. Bureau of Reclamation, secretary.

Engineering implications of the Cornwall, Ont., earthquake of September, 144, with special reference to the structures planned for the St. Lawrence deep waterway project were discussed by Mr. Berkey in a paper to be published later by the society.

Structures that can be established on solid rock would be in no danger of an earthquake of the same intensity as that at Cornwall, and works built on glacial till would suffer no material damage. On the other hand, structures involving loose sands and silts, particularly the marine silt deposits, will require special handling in design and construction. These works, it was pointed out, would include a considerable portion of the main canal.

Geology and engineering

Excellent broad reviews of the interrelation of geology and civil engineering design and construction were included in papers by W. A. Irwin and Roger Rhoades, representing the Bureau of Reclamation.

Among the illustrations cited by these authors were the case of a pressure tunnel in which 75 percent of the proposed reinforcing steel in the lining was saved after a study of rock stresses had been made; and the failure of a steel penstock due to swelling of bentonitic shale upon which its supports were founded—the swelling eventually having been found to be due to leakage from a neighboring canal. The sealing of the canal with an asphalt lining was the remedial measure necessary. (See *ENR* Oct. 16, 1947, vol. p. 524 for complete discussion.)

Two papers were presented, and others were published in abstract form, dealing with the geological aspects of concrete aggregate. In this connection, Mr. Rhoades said he was certain that petrographic analysis of concrete aggregates would soon be a regularly accepted test and that the general use of the test would revolutionize concrete aggregate selection.

R. E. Barnett, of the Corps of Engineers, Ohio River Division Laboratories, described results of tests of geophysical methods of subsurface exploration carried out at the Fort Randall Dam site in the Missouri Valley, to determine the suitability of these methods for other engineering work in the valley.

The Fort Randall Dam site was chosen for the test because of its many unusual geological characteristics and because many drill hole records were available for comparison purposes. It was found that electrical resistivity exploration failed to reveal the depth to bedrock with any accuracy when it exceeded about 15 ft. This type of geophysical exploration did reveal the upper surfaces of sand and gravel deposits but not their thicknesses.

Seismic exploration, on the other hand, gave an accurate estimate of the depth to rock and did reveal the water table if underground water was known to be present.

Mr. Barnett dealt at some length with the "masked phase" in seismic prospecting work, the effect of neglecting an unsuspected third phase (as of groundwater) in what is thought to be a two-layer system. He showed that neglect of this phase might introduce errors up to 32 percent as compared with an average error of 10 percent for geophysical methods generally. In view of this average error he suggested that geophysical exploration can only be a supplement to test drilling and cannot be thought of as a substitute for it.

Geology of dam foundations

Two papers gave details of the local geology of dam foundations. One, by S. S. Philbrick, of the Corps of Engineers at Pittsburgh, Pa., told of geological studies of the cyclothems of the Appalachian highlands of western Pennsylvania, and Mr. Berkey presented a general review of his work on the geology of the deep tunnels serving New York. He announced that a volume of several hundred pages giving this information in detail had been prepared and would soon be published.

The final paper of the special session was presented by R. F. Legget, of the National Research Council of Canada, describing the glacial geological features of the Steep Rock Lake district in western Ontario and some of the associated problems that had arisen in the development of the Steep Rock iron mine now in production. (See *ENR* Dec. 14, 1942, vol. p. 764 for details.)

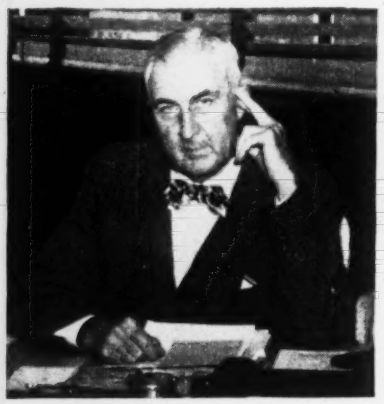
Almost ten million cubic yards of overburden have been removed from the old lake bed, mainly by sluicing and pumping, in developing the open pit-mine from which the high grade iron ore is now being obtained. The soil so moved is typical of the varved clays of glacial deposits. Detailed studies, Mr. Legget said, have shown that this soil is really a "rock flour," exhibiting no true cohesion but having unusually high moisture content, some as high as forty percent above the liquid limit. This high moisture content, related to the unusual deposition of the soils, make them highly unstable when disturbed.

Press Assn. photo

***Canadian Pipeline**—Racing to complete their work before winter weather makes further construction impossible, Canadian engineers were rapidly putting down a natural gas pipeline from newly-discovered fields at Kinsella, Alberta, to Edmonton. The pipe has a capacity of 66,000,000 cu. ft. daily.*

MEN · AND · JOBS

Elmer C. Lawton is retiring as Rochester, N. Y., district engineer for the New York State Department of Public Works, to be succeeded by **John B. McMorran,** now the assistant district engineer in the Binghamton district. Mr. Lawton has been more than 40 years in state service. He drew up tentative plans for the New York State Thruway. Before assignment to the Rochester post in 1940, he served as assistant commissioner of the division of highways in Albany for 12 years. He served as chairman of the road construction committee of the American Association of Highway officials and helped draw up specifications for standardizing cement pavement construction.



Col. George W. Gillette, who recently retired from the Army and as division engineer for the South Atlantic Division, has been appointed executive-director of the North Carolina State Ports Authority with headquarters at Wilmington, N. C. Colonel Gillette was succeeded as division engineer by Col. Mason J. Young.

William O. Cribbs, assistant city engineer at Fairbault, Minn., for the last year, has been appointed assistant city engineer at Winona.

Eugene E. Halmos, internationally-known hydraulic and harbor engineer, has joined the Knappen Engineering Co. of New York City as design consultant. Mr. Halmos will be principally concerned with hydro-electric projects and the design of harbors and harbor structures.

Clyde Myers, formerly safety consultant for Phoenix, Ariz., has been appointed to the staff of the Arizona highway department. He will make traffic studies under the supervision of W. E. Willey, head of the division of economics and statistics. With $24,000,000 available for highway projects, and $10,000,000 budgeted for construction this year, the state has been making intensive surveys to determine load factors of primary roads.

Joseph T. Connolly has been appointed county maintenance engineer of Dubuque County, Iowa.

Ralph B. Thomas, formerly assistant highway engineer of Story County, Iowa, has been appointed highway engineer for Adair County. He succeeds C. H. Vernon.

Frank J. Miller has been appointed city engineer, and **Libero Boldoni,** has been named sanitation officer, at Mishawaka, Ind.

Ralph R. Woolley, Salt Lake City, Utah, senior hydraulic engineer, U. S. Geological Survey, has been reappointed for a 2-year term to the lakes committee of the American Geophysical Union.

At Brazil, Ind., **Clint Anderson** is street commissioner; **Joseph Stunkard,** chief engineer of water works; **John P. Krampe,** superintendent of parks, and **Dr. O. L. Wood,** city health commissioner.

Rayburn E. Moore, Birmingham, Ala., has been appointed county engineer, for Tuscaloosa County, following the resignation of **Col. Woolsey Finnell.**

Mark G. Knight has been appointed city engineer for Grand Coulee, Wash. Previously he was with the Lehigh Portland Cement Co. as a concrete engineer.

The Harza Engineering Co. of Chicago, consulting engineers, have opened a branch office at Seattle, Wash., in the Lloyd Building, with **James R. Metcalf** as western manager. **Leroy F. Harza** has served as consultant on projects for the Seattle and Tacoma light departments and is a member of the engineering board for McNary Dam on the Columbia River, work on which is now under way.

J. B. Brannan, Texas Highway Department resident engineer at Brady,

Details of construction of a special $2,000,000 electronics hangar at the Patuxent, Md., Naval Air Station are discussed by Solomon Aronson (left), of the Bureau of Yards and Docks' construction staff; Wm. C. Barnhill (center), erection superintendent for American Bridge Co., and F. L. Tankersley, who is welding inspector.

During one of his regular inspections, Aymar Embury II, supervising and designing architect (right), and Frederick Quick, resident engineer, stopped to watch construction of the tower on Princeton University's Herbert Lowell Dillion gymnasium.

has been made resident engineer at Breckenridge, succeeding **M. D. Shelby**, who is now with the highway department's bridge department at Austin.

W. E. Williams, a superintendent of Army construction work at Camp Hood, Temple, Tex., has been made resident engineer of the $12,000,000 Lavon Reservoir project in Collin County, Tex.

Viggo Miller recently resigned as engineer in the project planning division of the Bureau of Reclamation, U. S. Department of the Interior, in Austin, Tex., to go with Ozark Dam Constructors, builders of Bull Shoals Dam on the White River, Ark. He is structural engineer working on the design of the contractor's plant. He had worked for James Stewart Associates on the U. S. Naval Base at Trinidad, British West Indies, and for American Bridge Co. at Trenton, N. J.

Col. Lawrence T. Smith has been invested with the grade of "Societaire de La Societe Des Ingeneurs Civils De France" for his work with French engineers during the North African campaign. He was wounded in Sicily. Prior to the war, he was an engineer with the Chicago Park Board for many years. Following his discharge from the military hospital he acted as consulting bridge engineer to UNRRA on the rehabilitation of the Chinese National Railroads. Colonel Smith is now principal architectural engineer of the Maryland State Health Department on hospital construction.

Enjoying the Florida climate while building a $1,225,000 highway bridge over the Halifax River at Daytona Beach for the Florida State Road Department are, left to right, D. M. Roberts, project engineer for the department; W. S. Goldman, engineer for the contractor; and A. T. Evans, superintendent for Tidewater Construction Corp., Norfolk, Va.

A. J. Burrows, photo

On Bear Mountain lookout of the Kennett division of Shasta Reservoir, Calif., Bureau of Reclamation, during an inspection trip, are District Manager Carr, Regional Director Boke, and R. G. Howard, of the regional staff.

On an inspection of structures in New York harbor recently, the Municipal Engineers Society were guests of the wood preserving companies operating in the New York area. Master-minding the trip were (left to right) L. J. Hally of Eppinger and Russell Co. Paul B. Dombrosky of the Municipal Engineers, J. C. Coolidge of American Lumber and Treating Co. and Ralph H. Mann of the American Wood Preservers Association.

Inspection trip by Corps of Engineers' boat through Calumet-Sag channel, Chicago, on a chilly day brings together, left to right: Kenneth C. Royall, Secretary of the Army; Martin H. Kennelly, mayor of Chicago, Col. Wendell P. Trower (partly hidden), Chicago district engineer; Wilfred Sykes, president of Inland Steel Co. and of Chicago Association of Commerce and Industry; Lt. Gen. Walton H. Walker, commanding general, Fifth Army; Oscar E. Hewitt, Chicago commissioner of public works; and Col. Dabney O. Elliott, division engineer, Great Lakes Division. Engineering plans are in process for initial work on first stage of channel improvement, estimated to cost $46,000,000. The entire authorized projects at 1947 prices are estimated to cost about $87,000,000.

ENGINEERING SCHOOL NEWS

Wohlenberg new engineering dean at Yale—Inter-Professions Conference on Education to be held in April—Accrediting at South American engineering schools to be studied

Prof. Walter J. Wohlenberg, an engineering graduate of the University of Nebraska, 1910, has been appointed dean of the school of engineering and director of the university division of engineering at Yale University, to take over his duties next July 1, to replace Samuel W. Dudley who will retire. At present Professor Wohlenberg is chairman of the mechanical engineering department at Yale.

Dean S. S. Steinberg of the University of Maryland college of engineering, has been appointed chairman of a committee to study the matter of accrediting of Latin American engineering colleges, it is announced by President H. T. Heald of the Illinois Institute of Technology who is chairman of the Committee on Engineering Schools of the Engineers Council for Professional Development. Dean Steinberg recently made a survey of engineering schools in Central and South America for the U. S. Department of State. The objective of the new committee will be to promote closer relations between the engineering colleges of the Western Hemisphere by facilitating the transfer of engineering credits earned at Latin American institutions and giving recognition to their engineering degrees.

An Inter-Professions Conference on Education for Professional Responsibility will be held at the Inn, Buck Hill Falls, Pa., on April 12-14. It is being sponsored by the Carnegie Corporation of New York and is limited to 100 invited specialists in education. Among the engineering speakers are President Karl T. Compton of M.I.T.; President Harry S. Rogers of the Polytechnic Institute of Brooklyn, and Prof. Maurice Falk of the Carnegie Institute of Technology.

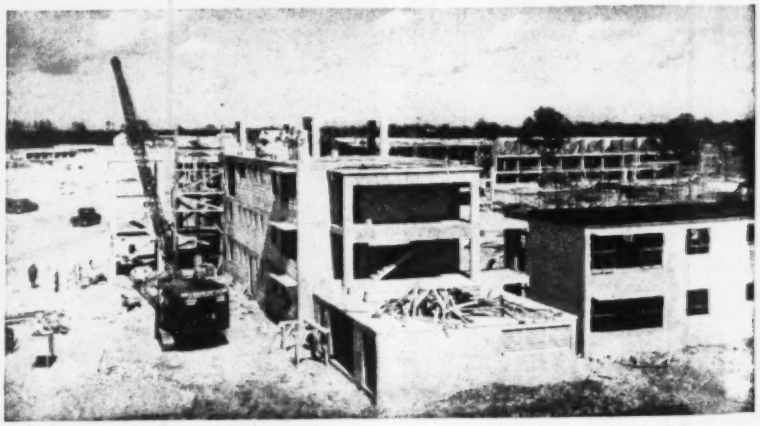
Dean Thorndike Saville of New York University's college of engineering has been appointed by Governor Thomas E. Dewey of New York to serve on the Public Health Council until Jan. 1, 1953.

Creation of a Chicago technical and scientific center through an alliance between the Western Society of Engineers and the John Crerar Library has been announced. The library, with 700,000 volumes is believed to be the world's largest free public library devoted exclusively to science and technology.

Ernest J. Parkin, formerly of Arlington, Va., where he was a member of the staff of the U. S. Coast and Geodetic Survey with headquarters in Washington, D. C., has been named assistant professor in the department of civil engineering at Ohio State University. He was graduated from the Rensselaer Polytechnic Institute and George Washington University specializing in physics.

The University of Iowa has announced appointment of Hayes H. Black to be associate professor of sanitary engineering in the department of civil engineering. He went to Iowa from Detroit, Mich., where he has been in charge of the pollution investigation of the U. S. Section, International Joint Commission. From 1934 to 1942 he was senior sanitary engineer with the Illinois Department of Public Health. During the war he served with the Corps of Engineers, first with the Engineer Board, Fort Belvoir, Va., and later in technical intelligence.

***Ex-Navy Housing for Students**—The Naval Air Station at Brunswick, Me., is now used by the University of Maine and Bowdoin College to house about 1,100 GI students. Flying facilities are used jointly by the Brunswick Flying Service and the Naval Reserve Aviation Unit assigned to the area.*



***University Housing Project**—What is believed to be one of the biggest housing projects in the Southeast is now under construction by the University of Miami. This Florida job calls for construction of 533 units in 2- and 3-story structures with concrete-block walls and concrete frame and floors. The Gust K. Newberg Construction Co., Miami, is the general contractor. For the university the office of Robert Law Weed is supervising architect, with Marion I. Manley as associate.*

PRA calls 1947 biggest highway year

Expenditures for construction on state-administered highways during 1947 totalled $890,000,000, to make the year the highest in history from a dollar volume standpoint, the Public Roads Administration said last week.

The figure was nearly $100,000,000 *above the record* $794,000,000 *for all highway work reported by Engineering News-Record in its issue of Jan. 1, but the PRA figures include all highway jobs, while ENR screens out contracts of less than* $50,000*).*

PRA Commissioner Thomas H. MacDonald coupled his announcement of the highway dollar volume with the statement that motor vehicle registration during the year mounted to an all-time high of 37,000,000, and that travel on rural highways also reached an all-time high.

At the year's end, Mr. MacDonald said, federal-aid projects that will have an eventual cost of more than $700,000,000 had been put under construction, and plans had been approved for additional projects that would see another $350,000,000 worth of work under way early in 1948.

The $890,000,000 total reported by PRA for 1947 compares with $501,000,000 reported in 1946 by the agency, and $522,785,000 reported in 1940.

Despite the dollar-volume record, however, actual work put in place was far from a new record, PRA said. Costs which have climbed between 80 and 93 percent since 1940 were blamed for the discrepancy.

Vehicle registration up

Increased use of highways for commercial transportation was reflected in the fact that truck registrations rose from 4,859,220 vehicles in 1941 to an estimated 6,500,000 for 1947—an increase of 33.7 percent. Further evidence of the increased use was contained in statistics that showed that truck hauling on rural roads was estimated at 86 billion ton-miles, compared with the previous high of 73.5 billion ton-miles in 1946.

To choose design Feb. 18 for Jefferson Memorial

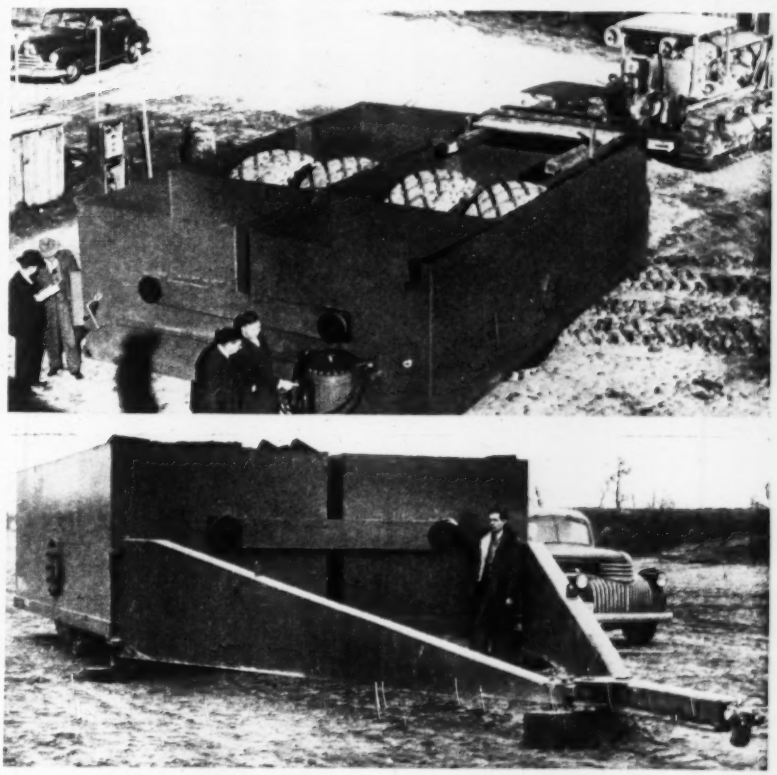
Completion of the competition to select a suitable design for a river-front memorial project on the St. Louis, Mo., wharf between the Eads Bridge and the area just north of the Douglas MacArthur Municipal Bridge (*ENR* Apr. 10, 1947, vol. p. 541) is to be celebrated with a dinner Feb. 18, the Jefferson National Expansion Memorial Association has announced.

The winning design is to be selected from among the five submitted by the selected finalists at the Feb. 18 deadline. The five finalists, whose names have been withheld from publication, were picked from among 172 who entered the preliminary stage of the contest. Each of the five have received $10,000. The winner is to receive $10,000 in addition, and the winning design is to be submitted to Secretary of the Interior J. A. Krug for his consideration. There is a possibility it may be selected as final design for the $10,000,000 project.

Forecast $211 million Indiana school building

The Indiana State Department of Public Institutions said last week that it would cost about $211,000,000 to bring the state school system up to the capacity necessary to take care of current needs.

Dr. Henry L. Smith said his organization is giving careful study to a "tremendous" increase in the number of children in the state, and has urged all school boards to begin consideration of construction of new buildings or needed additions to existing structures. He said that the current trend toward consolidation of smaller rural and urban schools has contributed greatly to the demand for larger buildings.



***Super Compactor**—Runways on the Baltimore, Md., Friendship Airport are to be rolled with a super-compactor weighing 40 tons and capable of being loaded to 200 tons. Experimental operation last month indicates that extra compaction obtained in non-cohesive sand and gravel (ENR, Oct. 16, 1947, vol. p. 532) will permit less expensive surfacing than would otherwise be required. At top O. J. Porter, consulting engineer and co-developer of the compactor, points out to Maj. Gen. C. R. Moore (ret.), head of the city aviation department, how movable hydraulic jack on the compactor unit works. The jack can be used for up to 100-ton soil tests or to lift the loaded compactor to change tires. In the lower picture Nathan Smith, Jr., testing engineer for Whitman, Requardt, Greiner Co. & Associates, indicates the connection and hitch used to permit a maximum of 12-in. oscillation over uneven ground.*

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OBITUARY

Schuyler Hazard, 80, resident engineer during the construction of the Pennsylvania station in New York City, died at Albion, N. Y., Jan. 9. A graduate of M.I.T. in 1890, he had a long career in civil engineering. During the war he was engaged in construction for the government in Texas and at Oak Ridge, Tenn.

Cecil H. Pulford, Cleveland, Ohio, civil engineer for 25 years, died Dec. 22. He was in the valuation engineering department of the New York Central Railroad. During the war he was consultant for contractors on war plants.

Walter L. Rosenwald, 65, traffic engineer of the Minnesota Highway Department, died in St. Paul, Jan. 6. A civil engineer graduate of the University of Minnesota, 1902, in point of continuous service he was the oldest member of the department.

R. H. Goode, president of the Dunbar & Sullivan Dredging Co., Detroit, Mich., died Jan. 9. Mr. Goode's experience in dredging began in 1909 on the Livingston Channel work in the Detroit River with the Buffalo Dredging Co. In 1913 he worked on the New York State Barge Canal as an assistant superintendent, but a year later resigned to become superintendent on the same project for Jas. Stewart & Co. In 1916 he went to the Dunbar & Sullivan Co. as vice-president and general manager.

Conway Bethune Hunt, 86, chief engineer of highways for the District of Columbia from 1897 until his retirement in 1930, died recently at Georgetown. He was graduated from Rensselaer Polytechnic Institute, in 1882, and joined the civil engineering staff of the Metropolitan and Washington Branch of the Pennsylvania Railroad. In 1890, he went with the District Highway Department as assistant engineer of bridges. He was appointed chief engineer of bridges in 1892 and five years later became chief engineer of highways. In 1917 he was commissioned a major in the Corps of Engineers. While serving with the Highway Department he surveyed Washington's needs for bridges and supervised construction of many of them. He also supervised the building of the Union Station and its approaches. In 1910 he went to Trinidad to study Pitch Lake as a source of asphalt supply.

Gilbert Hall, 62, Reno, Nev., engineer, died recently. For the last two years Mr. Hall had been engineer with the regional planning commission. This followed his service as area engineer for the Corps of Engineers at Herlong during the war. During World War I he was a lieutenant.

George E. Baker, 66, Long Beach, Calif., city engineer since 1938, died recently. He formerly worked for the Metropolitan Water District of Los Angeles.

John K. Wright, III, assistant engineer of Redding, Calif., died recently. He was released from service in the Corps of Engineers with the rank of colonel, having spent three years overseas in the Pacific theaters and having received the Legion of Merit for the construction of military highways. He formerly was city engineer of Redding.

Rudolph J. Thanisch, 66, of Boston, Mass., assistant engineer in the Boston Public Works Department, died Jan. 2. He was graduated from Harvard University and entered the transit division of the Public Works Department, where he worked on the Washington Street Tunnel and later with the sewer, bridge and ferry divisions.

Arthur E. Willard, 60, engineer of the Swampscott and Gloucester, Mass., public works departments, died Jan. 2 in Swampscott. He was formerly associated with the State Department of Public Works.

MAJOR MEETINGS

The National Sand and Gravel Association and National Ready Mixed Concrete Association, Netherlands Plaza Hotel, Cincinnati, Ohio, Jan. 19-23.

American Society of Photogrammetry, Wardman Park Hotel, Washington, D. C., Jan. 21-23.

American Society of Civil Engineers, annual meeting, Hotel Commodore, New York, N. Y., Jan. 21-24, 1948.

Canadian Construction Association, 30th annual meeting, Chateau Frontenac, Quebec, Que., Jan. 25-28.

American Road Builders' Association, and its Divisions, annual meeting, Willard, Mayflower and Statler Hotels, Washington, D. C., Jan. 26-28.

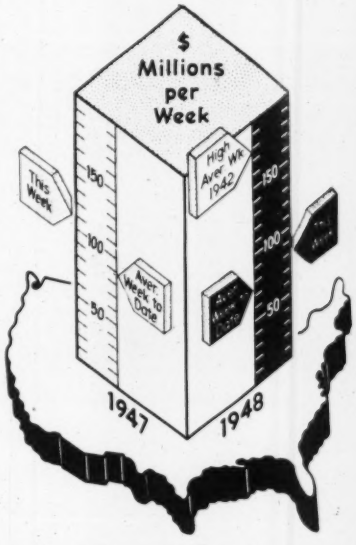
National Crushed Stone Association, Netherlands Plaza Hotel, Cincinnati, Ohio, Jan. 26-28.

Construction Industries Association, Statler Hotel, Washington, D. C., Jan. 28.

Associated General Contractors of America, Inc., 29th annual convention, Adolphus and Parker Hotels, Dallas, Tex., Feb. 9-12.

Associated Equipment Distributors, 29th annual meeting, Edgewater Beach Hotel, Chicago, Ill., Feb. 15-19.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only
(Thousands of Dollars)

	Week of Jan. 15 1948	Cumulative 1948 (3 wks.)	Cumulative 1947 (3 wks.)
Federal	$18,468	$35,258	$16,585
State & Mun.	32,615	94,973	66,517
Total Public.	$51,083	$130,231	$83,102
Total Private	32,201	93,092	179,480
U. S. Total.	**$83,284**	**$223,323**	**$262,582**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1948 (3 wks.)	Cumulative 1947 (3 wks.)
Waterworks ...	$924	$3,599	$13,325
Sewerage	2,598	5,698	5,092
Bridges	5,706	13,984	5,941
Highways	13,598	40,738	21,821
Earthwork, Waterways	6,608	11,411	4,806
Buildings, Public	16,986	40,613	15,313
Industrial ...	5,149	17,862	45,085
Commercial ..	25,179	68,215	125,904
Unclassified ...	6,536	21,203	25,295

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000 industrial buildings, $68,000; other buildings, $250,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1948 (3 wks.)	Cumulative 1947 (3 wks.)
NON-FEDERAL	$118,130	$31,790
Corporate Securities	71,140	1,425
State and Municipal	46,990	30,365
**Total Capital ..... **	**$118,130**	**$31,790**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Jan.'48	434.99	209.10
Building Cost	Jan.'48	326.92	176.72
Volume	Dec.'47	251	110